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AUTHOR Gebhart, Richard
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ABSTRACT

A project is described which developed a course outline, competencies, and learning modules for a course in classroom evaluation which will be offered as a part of the Wisconsin Vocational, Technical, and Adult Education (VTAE) Spiral Curriculum designed to meet VTAE teacher certification requirements. The procedures outlined involved an advisory committee of vocational teachers, administrators, Wisconsin Board of VTAE staff, students, and teacher educators in identifying the evaluation competencies VTAE teachers need and evaluating the materials developed. A major portion of the report is devoted to the appended course outline and learning modules. The course outline contains a brief description, objectives, procedures, and general references; availability is given for the textbook and six Performance Based Teacher Education (PBTE) Modules required for use with these materials. Topics covered in the seven units are developing evaluation criteria, assessing student performance using teacher constructed instruments, planning and administering tests, processing and utilizing evaluation information, competency based evaluation, evaluating instructional effectiveness, and standardized and commercial evaluation devices. Each unit consists of one to four modules which contain introductory statements, competencies and objectives, references, learning experiences, and performance assessment tests. Course instructors are encouraged to choose their preferred delivery systems. (YLB)

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ED179697

FINAL REPORT

PROJECT NO. 30-057-150-318

Funded By

Wisconsin Board of Vocational, Technical and Adult Education
Eugene Lehrmann, Director

Conducted Through
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University of Wisconsin-Stout
Menomonie, Wisconsin 54751

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Prepared By
Dr. Richard Gebhart
Industrial Teacher Education Department

DEVELOP AND VALIDATE A COURSE OUTLINE AND MODULES FOR THE EVALUATION COURSE FOR VOCATIONAL EDUCATION

CE 022 370

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Section I

Problem Researched

The purpose of this project was to develop a course outline and instructional modules for the evaluation course used for the certification of vocational teachers.

Vocational teachers have unique needs in the area of evaluation. They must be able to construct evaluation tasks which are realistic in relation to the tasks their students will encounter in industry. In addition they must be able to apply industry based criteria in judging the competence of their students.

An advisory committee comprised of vocational teachers, administrators, WBVTAE staff, students, and teacher educators helped to identify the evaluation skills needed. This committee also assisted in identifying course content, learning activities and evaluating the instructional modules.

Results of the project were disseminated to teacher education departments through the mail (see Appendix A).

Purpose of the Study

The purpose of this study was to develop a course outline, competencies, and learning modules for the vocational evaluation course which will be utilized for certification of VTAE teachers. The course outline identified the specific evaluation competencies to be developed by the course. These competencies were validated in relation to the teaching tasks of vocational teachers.

Objectives

The objectives established for this project were:

1. Identify the evaluation tasks vocational teachers need to carry out.
2. Identify the level of competency vocational teachers need in carrying out their evaluation tasks.
3. Develop a course outline for the evaluation course. This will include behavioral objectives, content modules or units, learning experiences, evaluation devices, and the competencies required of the instructor.

Rationale

In a recent study of the professional education competencies needed by

new teachers in the Wisconsin VTAE system, a variety of evaluation skills were identified (Maier, 1977). Participants in the study included teacher educators, VTAE administrators, experienced VTAE teachers and inexperienced VTAE teachers. Evaluation competencies that were identified as needed during the first six months of teaching included (1) determining the needs and interests of students, (2) evaluating student achievement to determine course effectiveness, (3) developing appropriate measuring and/or testing procedures for assessing student achievement, (4) selecting evaluation procedures appropriate to course objectives, (5) using student feedback to evaluate instruction and (6) applying self-evaluation techniques to evaluating teaching performance. Additional evaluation competencies were identified as needed in subsequent stages of professional development.

The recent emphasis on making program content more relevant by using V-TECS, taxonomy of subject matter and other task based curriculum development systems highlights the importance of evaluation competencies related to assessing performance. Vocational educators must be able to ascertain whether their students can adequately perform the tasks encompassed in the occupational area for which their students are preparing.

This summer a pilot test of a spiral curriculum for professional development was field tested (Ruehl, 1977). In a spiral curriculum those competencies needed first, regardless of traditional subject matter field, are presented in the first segment of professional development instruction. For example, the first block or course in a spiral curriculum might contain content on lesson planning, basic teaching techniques and evaluation methods for assessing student performance. This system requires careful identification of relevant evaluation competencies.

Feedback received by CVTAE staff as they meet with vocational educators throughout Wisconsin indicates that vocational teachers need more relevant evaluation skills. They needed more competency in selecting and designing appropriate evaluation techniques, collecting evaluation information and using information in making their curriculum and instructional decisions.

There was a need to develop a new course outline which would provide the level of definition needed to provide evaluation courses which are relevant and effective.

There was a need to develop a course outline for the evaluation course VTAE teachers take for certification. This outline needed to be designed and written with sufficient clarity so that the vocational evaluation courses offered by various institutions provide the evaluation skills vocational teachers needed.

Section II

Methodology/Procedures

The general competency areas were identified in previous studies (Maier, 1977). Activities in this project were designed to isolate specific evaluation content, techniques and processes which VTAE teachers need and to develop a functional course outline.

An advisory committee served an integral role in this project. It was comprised of two vocational teachers, one VTAE administrator, two WBVTAE staff members, three teacher educators from Stout, one teacher educator from U.W.-Eau Claire and one administrator from Stout. The committee helped identify the evaluation competencies VTAE teachers need, evaluate the course outline and evaluate the learning modules (see Appendix B).

Major segments or modules were used in order to make the course compatible with the spiral curriculum.

A developer of the spiral curriculum directed this project and was, therefore, familiar with the previously developed materials.

Procedures

1. Identified advisory committee.

2. Synthesized prior research on evaluation competencies needed by vocational teachers.

3. Reviewed evaluation and measurement literature to isolate relevant concepts, techniques and processes.

4. Conduct advisory committee meeting:

   -Review project.
   -Establish evaluation competencies needed.
   -Select course outline and content.
   -Review module layout.

5. Revise course outline.

6. Develop and/or select instructional modules.

7. Advisory committee review modules and submit suggestions.

8. Revise modules.

9. Disseminate course outline and modules to appropriate teacher education departments in Wisconsin.

Section III

Results and Benefits

Through the development of this course, it was necessary to bring together VTAE teachers, VTAE administrators, WBVTAE members, U.W.-Stout administrators and teacher educators from U.W.-Stout and U.W.-Eau Claire. Cooperative efforts of this type bring about efficient utilization of experience in our state and promote future cooperative programs.

The need for a common set of competencies in classroom evaluation has been evident for some time in order to promote consistency in certification of VTAE teachers. The modules developed can provide a major step toward developing common competencies for these teachers.

Dissemination of the evaluation modules should aid in setting a precedent for future projects of this type.

Section IV

Recommendations

The following recommendations are made in regard to this project.

1. Additional validation should be done during the coming year. The course should be taught, closely monitored and revised following data analysis.

2. Advisory committee members, students and teachers should provide input on course and teacher success.

3. Other similar projects should be embarked upon for other certification courses for VTAE teachers.

APPENDIX A

1. Course Outline
2. Unit and Module Listing
3. Learning Modules

INSTRUCTIONAL EVALUATION IN VOCATIONAL EDUCATION

469-640

Course Description

This course is centered around the skills vocational education teachers need to evaluate student progress in the classroom and laboratory. It also includes the concepts of teacher evaluation by the student and self evaluation by students.

Course Objectives

1. To become familiar with the philosophy goals of vocational evaluation at state and local levels.
2. To relate the domains of education to appropriate emphasis required in a vocational setting.
3. To construct tests for varying types and levels of learning.
4. To construct, assemble and administer measures of performance appropriate for determining vocational student competence.
5. To obtain and interpret test results from teacher-made and standardized tests.
6. To develop grading systems, including a competency based system.
7. To construct, assemble and administer measures of performance appropriate for determining vocational teacher effectiveness.

Units of Instruction

(See Unit and Module Listing.)

Course Procedures

This course is offered as a part of the VTAE Spiral Curriculum which is designed to meet the certification requirement for the area of classroom evaluation.

Course content is covered in seven units. Each unit contains introductory statements, unit competencies, and the procedures to be followed in acquiring the competencies. The course may be delivered using a combination of tele-lecture, individual meetings, large and small group meetings, instructional packages, etc. Each instructor will designate his/her preferred delivery system.

See course modules and outlines for detailed course procedures.

Required References

Text: Erickson, Richard C. and Tim L. Wentling. Measuring Student Growth: Boston: Allyn and Bacon Inc., 1976.

PBTE Modules: Instructional Evaluation Modules available from:
American Association for Vocational Instructional Materials
120 Engineering Center, Athens, Georgia 30602 (404) 542-2586

D-1 Establish Student Performance Criteria

D-2 Assess Student Performance: Knowledge

D-3 Assess Student Performance: Attitudes

D-4 Assess Student Performance: Skills

D-5 Determine Student Grades

D-6 Evaluate Your Instructional Effectiveness

Other References:

Brown, Frederick G. Measurement and Evaluation: Itasca, IL: F. E. Pescock Publishers, Inc., 1971.

Lien, Arnold J. Measurement and Evaluation of Learning: Dubuque, Iowa: Wm. C. Brown Co. Publishers, 1971.

Green, John A. Teacher-Made Tests, New York: Harper and Row, Publishers, 1975.

Gronlund, Norman E. Measurement and Evaluation in Teaching, 3rd edition, New York: MacMillan Publishing Co., Inc., 1976.

EVALUATION FOR VOCATIONAL EDUCATORS

Unit and Module Listing

MODULE	TITLE
UNIT I: DEVELOPING EVALUATION CRITERIA	
GS-I-1	Educational Evaluation: Foundations
GS-I-2	PBTE Module D-1 Establish Performance Criteria
UNIT II: ASSESSING STUDENT PERFORMANCE USING TEACHER CONSTRUCTED INSTRUMENTS	
GS-II-1	Analysis and Use of Teacher-Constructed Tests
GS-II-2	Student Performance-Cognitive (Knowledge) Assessment
GS-II-3	Student Performance-Psychomotor (Skill) Assessment
GS-II-4	Student Performance-Affective (Attitude) Performance
UNIT III: PLANNING AND ADMINISTERING TESTS	
GS-III-1	Developing Test Directions
GS-III-2	Test Decks: Preparation and Utilization
GS-III-3	Classroom Tests: Assemble, Administer, Score
UNIT IV: PROCESSING AND UTILIZING EVALUATION INFORMATION	
GS-IV-1	Analyze Test Results
GS-IV-2	Statistical Analysis
GS-IV-3	PBTE Module D-5 Determining Student Grades
UNIT V: COMPETENCY BASED EVALUATION	
GS-V-1	Competency Based Evaluation
UNIT VI: EVALUATING INSTRUCTIONAL EFFECTIVENESS	
GS-VI-1	The Evaluation Process: Aid to Instructional Improvement
GS-VI-2	PBTE Module D-6 Evaluate Your Instructional Effectiveness
UNIT VII: STANDARDIZED AND COMMERCIAL EVALUATION DEVICES	
GS-VII-1	Standardized and Commercial Evaluation Instruments: Identification
GS-VII-2	Standardized and Commercial Evaluation Instruments: Administration and Utilization

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT I: DEVELOPING EVALUATION CRITERIA

Module GS-I-1: Educational Evaluation: Foundations

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

INTRODUCTION

There are several facets of the teaching-learning process that must be mastered by anyone aspiring to be a vocational teacher. Not only do vocational teachers have to be experts in occupational areas, they must be able to inspire young people to become specialists. The teacher organizes materials for teaching-learning, sets up and demonstrates laboratory activities, directs student activities and must demonstrate a number of measurement and evaluation competencies. Among the competencies are:

1. Communicating in the evaluation field which implies an understanding and application of the concepts involved in the teaching-learning process,
2. Planning for measuring, evaluating, and interpreting measurement data,
3. Constructing measuring devices to include student evaluation in the cognitive, affective and psychomotor domains,
4. Constructing several different types of tests,
5. Processing the data gathered from the various measuring devices,
6. Selecting and using standardized measuring instruments, and
7. Applying the results of measurements and evaluation to inform students and improve the teaching-learning environment.

This module will be directed at assisting in the development of the competencies associated with communicating in the evaluation field in the area of understanding and application of the concepts basic to measurement and evaluation.

ABOUT THIS MODULE

Competencies to be Gained:

1. Communicate in the field of educational evaluation.
2. Summarize the purposes of measurement and evaluation.
3. Evaluate philosophies and models of evaluation in vocational education.

Objectives:

After completing this module, you will be able to:

1. Discuss the essential evaluation principles, purposes and strategies.
2. Define measurement and evaluation terms as indicated on an extensive list of terms.

3. Differentiate between measurement and evaluation.

4. Name and describe the various purposes of measurement in vocational education.

5. Relate the types of measurement devices generally used in student assessment.

Resources:

Text: Erickson, Richard C. and Tim L. Wentling. Measuring Student Growth, Boston, Allyn and Bacon, Inc., 1976, pp. 3-52.

References:

Green, John A. Teacher-Made Tests. New York: Harper & Row Publishers, 1975, Chapter 7.

Gronlund, Norman E. Measurement and Evalution in Teaching, 3rd Edition, New York: MacMillan Publishing Co., Inc., 1976, pp. 3-131.

Lien, Arnold J. Measurement and Evaluation of Learning, 2nd Edition, Dubuque, Iowa: Wm. C. Brown Co., 1971, pp. 2-58.

Myers, Robert H. The Heart of Instruction-Evaluation of Learning, #12 in a Series. Columbus, Ohio: Department of Vocational Education, 1977, pp. 1-57.

If you feel you have the competencies as stated, proceed to the Module Performance Assessment Tests.

If you feel the need for further study, do the module learning experiences.

Learning Experience I

Required: Write definitions for 33 selected terms.

Optional: Write definitions for additional terms from the list of terms.

Learning Experience II

Required: Read text and list purposes of measurement.

Optional: Read additional references.

Learning Experience III

Required: Read text and name and describe types of measurement devices.

Optional: Read additional references.

Learning Experience IV

Required: Read text and write a one paragraph article about each measurement concept.

Optional: Read additional references.

LEARNING EXPERIENCE I

Objective:

After completing this activity, you will be able to define identified terms in the measurement and evaluation field and be able to differentiate between measurement and evaluation.

Activity:

Quickly read text materials on pages 3-52 and write out definitions for the following terms:

Achievement test
Affective learning
Behavioral objectives
Criterion-referenced test
Cognitive learning
Checklist
Competencies
Completion items
Evaluation
Essay test items
Grading
Measurement
Matching item
Multiple choice item
Norm-referenced test
Observational devices
Objective tests
Oral tests
Psychomotor learning
Pre-assessment
Performance test
Post-assessment
Reliability
Rating scales
Standardized test
Supply type item
Scales of measurement
Taxonomy
Task analysis
True-false item
Validity, variability, written test

Write a short paper comparing measurement and evaluation.

Optional Activity:

Read other references as follows: Green, Chapter 7; Gronlund, pp. 3-131; Lien, pp. 2-58; and Myers, pp. 1-57. Write out definitions for these additional terms:

Aptitude test
Appraisal
Assessment
Anicdotal record
Attitude measure
Criteria
Correlation
Formative evaluation
Follow-up
Interest inventory
Interpretation
Interval scale
Item analysis
Mean
Median
Mode
Measurement error
Nominal scale
Ordinal scale
Perceptical learning
Percentile
Point of reference measurements
Quartile
Range
Raw score
Reporting
Report cards
Ratio scales
Standard deviation
Summative evaluation
Self-inventory
Student evaluation
Teacher evaluation

Assessment:

Your competency on these activities will be evaluated on the modules performance assessment test.

LEARNING EXPERIENCE II

Objective:

When you complete this activity, you will be able to name and describe the various purposes of evaluation in vocational education and show a strategy for evaluating students.

Activity:

Read material in text on pages 3-7. List all purposes of measurement and describe each of them in written form.

Optional Activity:

Read additional references as follows: Gronlund, pp. 3-14, 21-25; Lien, pp. 1-10; and Myers, pp. 11-13.

Assessment:

Your competency on the activity will be evaluated on the module performance assessment test.

LEARNING EXPERIENCE III

Objective:

After completing the activity, you will be able to relate the types of educational measurement devices to student assessment.

Activity:

Read text materials on pages 7-19. Name and describe in writing the several types of devices used to measure student performance.

Optional Activity:

Read additional references as follows: Gronlund, pp. 14-20 and Lien, pp. 10-16.

Assessment:

Your competency on this activity will be evaluated on the module performance assessment test.

LEARNING EXPERIENCE IV

Objective:

After completing this activity, you will be able to discuss the essential measurement principles of validity, reliability, measurement error, reference points for measurement, scales of measurement, and the role of measurement.

Activity:

Read text materials on pages 21-51. Write a short article covering each of the measurement concepts listed under the objective.

Optional Activity:

Read the following additional references: Green, pp. 83-99; Gronlund, pp. 79-131; Lien, pp. 41-57; and Myers, pp. 13-14.

Assessment:

Your competency on the activity will be evaluated on the module performance assessment test.

MODULE PERFORMANCE ASSESSMENT FORM

_____ Communicate in educational evaluation.

_____ Summarize purposes for measurement and evaluation.

I. Fill in the blank with the appropriate word or words to fit the definition:

_____ The first quantitative result obtained in scoring a test.

_____ A test requiring motor or manual response on the examinees part.

_____ A test item in which the examinee must choose the correct or best answer from a series.

_____ A systematic sample of performance obtained under prescribed conditions, scored according to definite rules, and capable of evaluation by reference to normative information.

_____ A test question in which the examinee must indicate the item to be true or false.

_____ A test item calling for the correct association of each entry in one list with an entry in another list.

_____ A test that measures the extent to which a person has mastered or acquired a skill of some information.

_____ A test with no possibility of scoring differences regardless of who scores the responses.

_____ A test item calling for the filling in of a blank word, phrase or sentence.

_____ The spread or dispersion of scores.

_____ A test on which the results are compared to some standard rather than against others taking the test.

_____ That aspect of an individuals learning associated with the development of physical skills.

_____ An instrument used to assess a person's performance on a developing skill or on attitudinal performance.

_____ A test on which the individual examinee is compared to other persons taking the test or to results obtained during standardization of the test.

_____ The aspect of learning having to do with the development of attitude.

_____ A series of entries, generally performance type items, learners must complete during the development of skills or attitudes.

_____ An aspect of learning centering in the learners acquisition of knowledge.

_____ That aspect of measurement and evaluation involved in manipulating the test results and other measurement input to arrive at a letter, number, or word describing the student's accomplishments.

_____ A phase of measurement and evaluation through which the teacher determines the competencies the student enters the class possessing.

_____ A person's broad ability toward some performance requiring knowledge, skill, and the appropriate attitude.

_____ Instruments developed for gathering data on a learner's performance through the instructor's careful monitoring of that performance.

_____ Tests administered through the verbal presentation by the student.

_____ A phase of the measurement and evaluation process used to determine the total change that occurred as a result of the student's experiences in the class.

_____ Measurement instruments used for student assessment requiring the use of paper and pencil.

II. Write a paragraph indicating the relationship between measurement and evaluation.

Measurement is a systematic process of gathering quantitative data of student performance or behavior. Measurement produces data with no particular level of value or worth. Measurement is definitely an information gathering process.

Evaluation on the other hand is concerned with a judging of the worth or adequacy of the student. The teacher would make decisions concerning the student's knowledge, skill, and attitude-is the student developed adequately to receive a stamp of approval to be graduated from the course, program or curriculum?

III. List the purposes for measuring student progress.

Monitor student progress
Aiding career guidance
Classifying and placing students
Aiding program evaluation
Aiding curriculum development
Improving instruction
Assessing teaching effectiveness

IV. List the five general types of measurement instruments.

Achievement tests
General mental ability tests
Aptitude tests
Interest tests
Attitude tests

V. Indicate what each of the following measurement concepts are and their contribution to the measurement process.

Validity
Reliability
Measurement error
Scales of measurement
Point of reference for measurement
Role of measurement

Validity:

By definition, the validity of an instrument is the degree to which the device measures what it is supposed to measure. This certainly is a primary pre-requisite of a test.

Actually there are several types of validity: predictive validity, concurrent validity, content validity, construct validity, and internal validity. Predictive validity is concerned with how well the test results can be used to predict future performance. Concurrent validity is for assessing current levels of ability as indicated by student scores. Content validity implies the subject content of the test. Construct validity refers to the underlying theories on which the test is based. Internal validity focuses on the analysis of student responses on the test.

Reliability:

Reliability is the degree to which a test consistently measures what it was designed to measure. Statistical analyses can be performed to determine reliability coefficients of stability, equivalence and internal consistency.

Tests can be reliable without being valid. We can consistently measure something that may not be measuring what it should be. For teacher made tests validity is the most important aspect to consider.

Standard error of measurement:

Any score a student receives on a test is really a combination of a theoretical true score plus any error in measurement.

Teachers as test writers should keep this concept in mind when processing student scores on teacher made tests. So many variables are present in testing that to base an undue restriction on students due to test results may be a judgemental error on the teacher's part.

Scales of measurement:

All measures we gather are or can be considered as being in four different scales: nominal, ordinal, interval, and ratio. Nominal implies an either or relationship; ordinal scales place values in order 1, 2, 3, etc. with no set quantity between the units. Interval scales adds the characteristic of given size intervals between units but lack a zero. The precise ratio scale can place a relationship in addition to intervals of equality the characteristic of zero and any given value may have another value twice or three times its value.

Reference measurement:

Norm referencing is based on comparing the test results to a standard developed in comparing people taking the test against other people. Criterion referencing implies a standard based against a set level of performance.

Role of measurement:

Formative measurement is closely associated with pre-assessment. The concern is for finding out the level of knowledge, skill or attitude persons have prior to their entering the particular learning process.

Summative measurement parallels what is known as post-assessment. It concerns itself with what has happened as a result of the student's experiences in the learning environment.

Lastly ultimate measurement takes into account the formative plus the summative and a significant period of employment experience.

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT I: DEVELOPING EVALUATION CRITERIA

Module GS-I-2: PBTE Module D-1 Establish Performance Criteria

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

ABOUT THIS MODULE

To complete the competencies for this module, see Performance Based Teacher Education (PBTE) Module D-1, "Establish Student Performance Criteria".

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT II: ASSESSING STUDENT PERFORMANCE USING TEACHER CONSTRUCTED INSTRUMENTS

Module GS-II-1: Analysis and Use of Teacher-Constructed Tests

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

INTRODUCTION

High quality evaluation is a result of considerable preparation, skillful application and analysis of results. Planning and assessing student performance starts with a base of measurable objectives followed by a series of other considerations.

This module will develop around the various types of teacher constructed tests and their uses. In addition, the concepts of pre-, continual and post-testing will be covered.

Teacher Constructed Tests:

1. Oral Tests
2. Written tests
3. Observational Techniques
4. Subjective Tests
5. Objective Tests
6. Pre-Tests
7. Post-Tests

ABOUT THIS MODULE

Competencies to be Gained:

1. Analyze uses of various types of teacher-constructed tests.
2. Develop a plan for using pre-, post- and continual testing.

Objectives:

After completing this module, you will be able to:

1. Cite advantages and disadvantages of using the following tests: oral, written, observational, subjective and objective.
2. Justify the use of oral, written, observational, subjective and objective tests.
3. Determine the purposes for pre-, post- and continual testing.
4. Prepare a plan for using pre-, post- and continual testing.

Resources:

Text: Erickson, Richard C. and Tim L. Wentling. Measuring Student Growth. Boston: Allyn and Bacon, Inc., 1976.

References:

Brown, Frederick G. Measurement and Evaluation. Itasca, IL: F. E. Peacock Publishers, Inc., 1971, pp. 47-73.

Lien, Arnold J. Measurement and Evaluation of Learning. Dubuque, Iowa: Wm. C. Brown Co. Publishers, 1971.

Green, John A. Teacher-Made Tests. New York: Harper and Row, Publishers, 1975.

Gronlund, Norman E. Measurement and Evaluation in Teaching, 3rd Edition. New York: MacMillan Publishing Co., Inc., 1976, pp. 135-248 and 427-452.

If you feel you possess the competencies of this module, proceed to the Module Performance Assessment Test.

If you feel you need additional experience, complete the learning experiences associated with this module.

Learning Experience I

Optional: Text reading in Green, Teacher-Made Tests, chapters 1, 5 and 6. Cite advantages and disadvantages of various tests and indicate your tests and justify their use.

Reference reading (any other reference text).

Learning Experience II

Required: Text reading 48-50, attend lecture, present purposes of pre-, post- and continual testing and prepare a bar-model. pre-, post- and continual testing.

Optional: Reference Reading.

LEARNING EXPERIENCE I

Objectives:

After completing these activities, you will be able to:

1. Cite advantages and disadvantages of using oral, written, observational, subjective and objective tests.
2. Justify the use of oral, written observational, subjective and objective tests.

Activity:

Read Green, Teacher-Made Tests, chapters 1, 5 and 6. Verbally or in writing, cite the major advantages and disadvantages of oral, written, observational, subjective and objective tests. Indicate the type(s) of test you plan to use and justify their uses.

Optional Activity:

Read other references as follows: Brown, pp. 56-69; Gronlund, pp. 144-149; 175-176, 181-182, 196-198, 223-225, 237-239, 432-433; Lien, pp. 102, 111-123, 132-134; Erickson and Wentling, pp. 91-92, 104-108, 111, 116, 117, 119-122, 130-132, 168, 177-178, 224-225.

Assessment:

Your competency on this activity will be evaluated on the Module Performance Assessment Test.

LEARNING EXPERIENCE II

Objectives:

After completing this activity, you will be able to:

1. Determine the purposes for pre-, post- and continual testing.

2. Prepare a plan for using pre-, post- and continual testing.

Activity:

Read text materials on pages 48-50. Attend instructor presentation on pre-, post- and continual evaluation. Present, verbally or in writing, the purposes of pre-, post- and continual testing. Prepare a model showing scope and sequence of pre-, post- and continual testing.

Optional Activities:

Read the following references: Gronlund, pp. 16, 20, 136-139, 488-489. Analyze your evaluation methods. Cite the strong and weak points of your evaluation system as related to the objectives above.

Assessment:

Your competency on this activity will be evaluated on the Module Performance Assessment Test.

MODULE PERFORMANCE ASSESSMENT TEST

Complete this form using the directions below.

DIRECTIONS: **Indicate the level of the teacher's accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.**

	LEVEL OF PERFORMANCE					
TEST SUPPORT	**N/A**	**NONE**	**POOR**	**FAIR**	**GOOD**	**EXCELLENT**
1. Advantages and Disadvantages of oral tests.	0	0	0	0	0	0
2. Advantages and Disadvantages of written tests.	0	0	0	0	0	0
3. Advantages and Disadvantages of observational devices.	0	0	0	0	0	0
4. Advantages and Disadvantages of subjective tests.	0	0	0	0	0	0
5. Advantages and Disadvantages of objective tests.	0	0	0	0	0	0
TEST JUSTIFICATION						
6. Justify tests used.	0	0	0	0	0	0
PRE-, POST- AND CONTINUAL TESTING						
7. Purposes presented.	0	0	0	0	0	0
8. Model Program.	0	0	0	0	0	0

NOTE: A written examination covering this module may be substituted at the discretion of the instructor.

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT II: ASSESSING STUDENT PERFORMANCE USING TEACHER CONSTRUCTED INSTRUMENTS

Module GS-II-2: Student Performance Cognitive (Knowledge) Assessment

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

INTRODUCTION

In the past most measures of achievement have centered around cognitive (knowledge) achievement. One of the main reasons for this emphasis is because much learning is knowledge oriented. Another contributing factor is that knowledge usually preceeds psychomotor (skill) processes and attitude (affective) development. An example would be in order for a welder to perform an act of arc welding, the welder must first have knowledge about the operation of the equipment, the welding procedures and the safety practices.

ABOUT THIS MODULE

Competencies to be Gained:

1. Formulate procedures for administering cognitive tests.
2. Assess student cognitive (knowledge) performance.

Objectives:

After completing this module, you will be able to:

1. Identify the types of items suited for evaluating cognitive performance.
2. Construct, using test deck forms, the following types of items to measure cognitive achievement.
   a. multiple choice
   b. matching
   c. completion
   d. true-false
   e. case study/problem solving
   f. oral
   g. essay
   h. listing
   i. identification of actual object
   j. identification through picture or drawing
3. Prepare a procedure for administering teacher-made cognitive tests for the typical student.
4. Prepare a procedure for administering teacher-made cognitive tests for special students.
5. Prepare an answer sheet for a cognitive test.
6. Prepare an inflexible scoring key for a cognitive test.
7. Illustrate a student option of answering directly on the test form.

8. Defend the following test attributes of your test:
   a. validity
   b. reliability
   c. discrimination
   d. comprehensiveness
   e. objectivity

Resources:

Text: Erickson, Richard D. and Tim L. Wentling. Measuring Student Growth, Boston: Allyn and Bacon, Inc., 1976, pp. 86-124.

PBTE Module D-2.

References:

Green, John A. Teacher-Made Tests. New York: Harper & Row Publishers, 1975, Chapters 2, 3, 5 and 6.

Gronlund, Norman E. Measurement and Evaluation in Teaching, 3rd Edition, New York: MacMillan Publishing Co., Inc., 1976, pp. 164-248.

Lien, Arnold J. Measurement and Evaluation of Learning. Dubuque, Iowa: Wm. C. Brown Company, 1971, pp. 98-166.

Myers, Robert H. The Heart of Instruction: Evaluation of Learning, Series #13. Columbus, Ohio: Ohio Department of Education and Ohio Agriculture Education, 1977, pp. 1-60.

The Center for Vocational Education. Assess Student Performance: Knowledge, Module D-2. Athens, Georgia: American Association for Vocational Instructional Materials, 1977, pp. 1-56.

If you feel you have the competencies as laid out in the objectives for this module, proceed to the D-2 module Performance Assessment Test and the GS-II-2 Performance Assessment Test.

If you feel additional experiences are required, proceed to complete the learning experiences contained as a part of this module.

LEARNING EXPERIENCE I

Objective:

After completing this activity, you will be able to assess student cognitive (knowledge) performance.

All additional activities involved in this learning experience are to be those covered in the Performance-Based Teacher Education Module D-2, Assess Student Performance: Knowledge.

DO MODULE D-2 IN ITS ENTIRETY INCLUDING THE MODULE PERFORMANCE ASSESSMENT TEST.

LEARNING EXPERIENCE II

Objective:

After completing this activity, you will be able to assess student cognitive performance using three special types of test items.

Activity:

Read text material covered on pages 86-124 and construct items listed below using test item deck procedures.

1. two listing type test series
2. two actual object identification items
3. two picture/drawing identification items

Optional Activity:

Read other references as follows: Green, 47-50 and Gronlund, 210-231. Repeat the activity for numbers 1, 2 and 3 under the required activity.

Assessment:

Your competency on this activity will be evaluated on the module performance assessment test.

LEARNING EXPERIENCE III

Objective:

After completing this activity, you will be able to prepare the procedure for administering cognitive tests to special students.

Activity:

Read text materials on pages 337-350 and article "Measurement and Evaluation" by Tim L. Wentling in the May/June, 1978 issue of Industrial Education (Teaching Special Need Students). Construct the procedure you would use for the mainstreaming of the mentally handicapped, the visually handicapped, the physically handicapped.

Optional Activity:

None

Assessment:

Your competency on this activity will be evaluated on the module performance assessment test.

MODULE PERFORMANCE ASSESSMENT TEST

Complete this form using the directions below.

DIRECTIONS: Indicate the level of the teacher's accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

	LEVEL OF PERFORMANCE					
SPECIAL TEST ITEMS	N/A	NONE	POOR	FAIR	GOOD	EXCELLENT
1. Listing type test series	0	0	0	0	0	0
2. Object identification	0	0	0	0	0	0
3. Picture/drawing identification	0	0	0	0	0	0
4. Optional listing	0	0	0	0	0	0
5. Optional identification (object)	0	0	0	0	0	0
6. Optional identification (picture draw)	0	0	0	0	0	0
SPECIAL STUDENT TESTING						
7. Mentally handicapped	0	0	0	0	0	0
8. Visually handicapped	0	0	0	0	0	0
9. Physically handicapped	0	0	0	0	0	0
10. Others - list	0	0	0	0	0	0

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT II: ASSESSING STUDENT PERFORMANCE USING TEACHER CONSTRUCTED INSTRUMENTS

Module GS-II-3: Student Performance-Psychomotor (Skill) Assessment

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

INTRODUCTION

Measurement of occupational skills is the basis of this module. This means an assessment of physical or motor skills. Although the performance of the skill is being measured, educators should realize that there is a relationship between motor skills, knowledge and attitude while the skill is being demonstrated. An example would be a secretary while performing typewriting, a motor skill, must also be knowledgeable in grammar, spelling and machine operation. The secretary must also possess attitudes conducive to the actual work and relationships with the person who dictated the letter and possibly the person receiving the letter.

Psychomotor objectives usually require more than paper-pencil type tests; therefore, this module emphasizes measurement instruments directly related to performance skills.

ABOUT THIS MODULE

Competencies to be Gained:

1. Formulate procedures for administering psychomotor test instruments.
2. Assess student psychomotor (skill) performance.

Objectives:

After completing this module, you will be able to:

1. Identify the types and uses of items or instruments suitable for measuring psychomotor performance.
2. Construct the following instruments to assess psychomotor performance:
   a. performance tests
   b. checklists
   c. progress charts
   d. rating scales
3. Prepare procedures for administering psychomotor measurement instruments to:
   a. typical students
   b. special students
4. Prepare scoring, answer and/or recording sheets for the four different measurement instruments.

Resources:

Text: Erickson, Richard C. and Tim L. Wentling. Measuring Student Growth. [illegible]: Allyn and Bacon, Inc., 1976, pp. 125-186.

PBTE Module D-4.

References:

Green, John A. Teacher-Made Tests. New York: Harper and Row Publishers, 1975, Chapter 4.

Gronlund, Norman E. Measurement and Evaluation in Teaching, 3rd Edition, New York: MacMillan Publishing Co., Inc., 1976, pp. 435-449.

Lien, Arnold J. Measurement and Evaluation of Learning. Dubuque, Iowa: Wm. C. Brown Company, 1971- pp. 132-146.

The Center for Vocational Education. Assess Student Performance: Skill. Module D-4. Athens, Georgia: American Association for Vocational Instructional Materials, 1977, pp. 1-28.

If you feel you have the competencies as laid out in the objectives for this module, proceed to the D-4 module Performance Assessment Test and the GS-II-3 Performance Assessment Test.

If you feel the need for additional experiences, proceed to the learning experiences that are a part of this module.

LEARNING EXPERIENCE I

Objectives:

After completing this activity, you will be able to:

1. Identify the types and uses of items or instruments suitable for measuring psychomotor performance.
2. Construct performance tests.
3. Construct checklists.
4. Construct rating scales.

Activities:

Complete Performance Based Teacher Education Module D-4 "Assess Student Performance: Skills". Read text material on pages 125-186.

Optional Activity:

Read other references as follows: Green, pp. 42-57; Gronlund, 435-449; and Lien, pp. 132-146.

Assessment:

Complete the Performance Assessment Test at the completion of the PBTE D-4 module.

LEARNING EXPERIENCE II

Objective:

After completing this activity, you will be able to construct progress charts.

Activity:

Attend instructor presentation on progress charts. Build a progress chart around a simulated or real classroom situation. The completed chart should contain spaces for all student names and the activities they are to progress through.

Optional Activity: None

Assessment:

Your competency on this activity will be evaluated by your instructor.

LEARNING EXPERIENCE III

Objective:

After completion of this activity, you will be able to administer psychomotor tests to special students in your classroom. Special students to include mentally handicapped, physically handicapped, visually handicapped and audio handicapped.

Activity:

Read text materials on pages 337-350. Attend lecture on working with special students. Prepare procedures for administering psychomotor tests to the mentally, physically, visually and audio handicapped student.

Optional Activity:

Visit a vocational rehabilitation evaluation center. Find out procedures rehabilitation people use to assist the handicapped.

Assessment:

Your competency on this activity will be evaluated by your instructor.

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT II: ASSESSING STUDENT PERFORMANCE USING TEACHER CONSTRUCTED INSTRUMENTS

Module GS-II-4: Student Performance-Affective (Attitude) Performance

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

INTRODUCTION

The domains in which conscious evaluation efforts are made are in the cognitive and psychomotor. This may be the result of considering knowledge and skill the "obvious" needs of job performance. Vocational educators will agree that knowledge and skill are important in "getting" a job; however, most also agree that retaining the job requires affective (attitude) skills. Failure to get along with fellow workers has long been identified as the major reason for lack of success on the job.

The affective domain, as covered in this module, is concerned with the measurement and evaluation of objectives and competencies associated with the personal-social development of students. The affective classification of behavioral objectives contains five subdivisions or levels as a guide for developing the evaluation system for affective objectives.

ABOUT THIS MODULE

Competencies to be Gained:

1. Formulate procedures for administering affective evaluation instruments.
2. Assess student affective (attitude) performance.

Objectives:

After completing this module, you will be able to:

1. Identify types and uses of instruments suited to measuring and evaluating attitudes.
2. Construct the following items or instruments to assess student performance in the affective domain:
   a. essay items
   b. problem solving situations
   c. oral tests
   d. structured interviews
   e. attitude scales
   f. checklists
3. Prepare procedures for administering affective test instruments to both typical and special students.
4. Prepare the necessary answer sheets and/or scoring keys for the essay items, problem solving situations, oral tests, structured interviews, attitude scales and checklists.

Resources:

Text: Erickson, Richard C. and Tim L. Wentling. Measuring Student Growth. Boston: Allyn and Bacon, Inc., 1976, pp. 187-232.

References:

Green, John A. Teacher Made Tests, New York: Harper & Row, Publishers, 1975, Chapters 5 and 6.

Gronlund, Norman E. Measurement and Evaluation in Teaching, 3rd Edition, New York: MacMillan Publishers, 1976, pp. 232-248 and 427-479.

Lien, Arnold J. Measurement and Evaluation of Learning, Dubuque, Iowa: Wm. C. Brown Company, 1971, pp. 132-166.

The Center for Vocational Education. Assess Student Performance: Attitudes, Athens, Georgia: American Association for Vocational Instructional Materials, 1977, pp. 1-36.

If you feel you possess the competencies expressed in this module, proceed to the performance evaluations as listed.

If you feel further experiences are necessary, proceed to the learning experiences outlined in this module.

LEARNING EXPERIENCE I

Objectives:

After completing the activities of this learning experience, you will be able to:

1. Identify types and uses of instruments suited to measuring and evaluating attitudes.
2. Construct essay items, problem solving situations, oral tests, structured interviews, attitude scales and checklists for assessing student affective performance.
3. Prepare necessary recording-scoring devices for the list in objective 2.

Activity:

Read text materials on pages 187-232. Complete Performance Based Teacher Education Module D-3.

Optional Activity:

Read other references as follows: Green, chapters 5 and 6; Gronlund, pp. 232-248 and 427-479; and Lien, pp. 132-166.

Assessment:

Your competency on this learning experience will be evaluated on the D-3 module Performance Assessment Test.

LEARNING EXPERIENCE II

Objective:

After completing this learning activity, you will be able to assess affective performance of special students enrolled in your classes.

Activity:

Read text materials on pages 337-350. Develop procedures for administering affective performance measurement and evaluation instruments to the mental, physical, visual and auditory handicapped students.

Optional Activity:

Visit a vocational rehabilitation center and observe how they conduct their testing and assessment program.

Assessment:

Your competency on this learning activity will be evaluated by your instructor.

INTRODUCTION

Following the preparation of test items, it is necessary to develop general directions or guidelines for the student when taking the test. General directions include information about the entire test. There are several considerations: where the student is to place answers, on the test form or on an answer sheet; time provided for taking the test; total number of points possible and data on name, score, grade, etc.

Specific test item directions refer to the name of the item and the way students should respond to those specific items. Special items by name include True-False, Multiple-Choice, Matching, Completion, Listing, Identification and others such as noted in the objectives of this module. Any special penalties, points or considerations should be included.

Some test-makers tend to omit directions or attempt to provide only verbal directions. In actual practice, most tests require written and verbal directions.

This module is devoted to the ways in which test directions are developed and used for teacher-made tests.

ABOUT THIS MODULE

Competencies to be Gained:

1. Prepare general test directions.
2. Prepare special item type test directions.

Objectives:

After completing this module, you will be able to:

1. Prepare general test directions for examinations where students are to place answers on the test form.
2. Prepare general test directions for examinations where students are to place answers on separate answer or scoring sheets.
3. Compose directions for special items; namely, true-false, multiple choice, matching, completion, listing, identification, case study/problem solving, essay, performance, checklists, rating scales, structured interview and oral.

Resources:

Text: Erickson, Richard C. and Tim L. Wentling. Measuring Student Growth, Boston: Allyn and Bacon, Inc., 1976, pp. 239-242.

References:

Gronlund, Norman E. Measurement and Evaluation in Teaching, 3rd Edition, New York: MacMillan Pub. Co., Inc., pp. 254-258 and 369-371.

Lien, Arnold J. Measurement and Evaluation of Learning, Dubuque, Iowa: Wm. C. Brown Company Pub., 1971, pp. 109-110.

LEARNING EXPERIENCE I

Objective:

After completing this activity, you will be able to prepare general directions for tests where students are to place answers on the test form and also for tests with special answer sheets or forms.

Activity:

Read text materials on pages 239-242 and review modules D-2, D-3 and D-4. Compose a set of general directions for a test using all recommendations found in reading for a test on which the students are to place answers on the test form.

Repeat for a test where students are to answer items on a special answering sheet or form.

Place directions developed above on a card file card to fit your test item deck. Include special directions for the handicapped.

Optional Activity:

Read additional references as listed.

Assessment:

Your competence on this activity will be assessed through Module D-2, D-3 and D-4 plus instructor evaluation.

LEARNING EXPERIENCE II

Objective:

After completing this activity, you will be able to compose special item directions for true-false, multiple-choice, matching, completion, listing, identification, case study/problem solving, essay, performance, checklists, rating scales, structured interviews and oral items.

Activity:

Read text materials on pages 239-240, sections of Green's book in chapters 5, 6, 7 and 8 on directions and those sections on PBTE modules D-2, D-3 and D-4 pertaining to test directions. Compose special item directions for each type of item listed in the learning experience objective Do these on file cards for placement in your test deck. Include special directions for the handicapped.

Optional Activity: None

Assessment:

Your competency will be evaluated on the module performance tests for modules D-2, D-3 and D-4 and instructor assessment.

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT III: PLANNING AND ADMINISTERING TESTS

Module GS-III-1: Developing Test Directions

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT III: PLANNING AND ADMINISTERING TESTS

Module CS-III-2: Test Decks: Preparation and Utilization

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

INTRODUCTION

In Unit II of the evaluation for vocational educators, writing test items in the cognitive, psychomotor and affective domains were covered. Items, namely, true-false, multiple-choice, matching, listing, essay and so forth will be written on file cards. The previous module (GS-III-1) covered direction composition, also to be placed on file cards. With items on cards and directions on cards the next logical step is to focus on the types and uses of test item decks.

This module directs the student to an analysis and use of test item decks and mechanics of assembling them.

ABOUT THIS MODULE

Competencies to be Gained:

Prepare test item decks.

Objectives:

After completing this module, you will be able to:

1. Cite the advantages and disadvantages of using hand-assembled test decks.
2. Cite the advantages and disadvantages of using computer generated test decks.
3. Develop procedures for using either hand or computer generated test decks.
4. Prepare a test deck to include samples of all types of items following recommended card data information.
5. Assemble test deck complete with directions generated earlier into a card box.

Resources:

Text: Erickson, Richard C. and Tim L. Wentling. Measuring Student Growth. Boston: Allyn and Bacon, Inc., 1976, pp. 233-241 and 257.

References:

Gebhart, Richard. "The Mechanics of Test Preparation".

LEARNING EXPERIENCE I

Objective:

After completing this activity, you will be able to cite the advantages of using test decks--both hand assembled and computer generated

Activity:

Read the material as listed in the references, list the advantages and disadvantages of test decks and be prepared to discuss test decks in a class session.

Optional Activity: None

Assessment:

Your competence on this activity will be assessed through the module performance form accompanying this module.

LEARNING EXPERIENCE II

Objective:

After completing this activity, you will have developed the procedures for using hand assembled or computer generated test decks.

Activity:

Read materials as indicated in references and write out the procedures for both hand and computer generated test decks.

Optional Activity: None

Assessment:

Your competence on this activity will be assessed through the module performance form accompanying the module.

LEARNING EXPERIENCE III

Objective:

After completing this activity, you will be able to prepare a hand assembled or computer generated test deck containing at least seven different types of items complete with all applicable parts of each test item card and directions for each of the specific types of items.

Activity:

Using test item cards prepared in Unit II, complete all applicable parts of the test item cards. Place all completed cards (item cards and direction cards) in an index file.

Optional Activity:

Complete second deck for another course you teach.

Assessment:

Your competence on this activity will be assessed through the module performance form accompanying this module.

MODULE PERFORMANCE ASSESSMENT FORM

Complete this form using the directions below.

DIRECTIONS: Indicate the level of the teacher's accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

	LEVEL OF PERFORMANCE					
	N/A	None	Poor	Fair	Good	Excellent
1. Cite advantages of hand generated test decks.	0	0	0	0	0	0
2. Cite disadvantages of hand generated test decks.	0	0	0	0	0	0
3. Cite advantages of computer generated test decks.	0	0	0	0	0	0
4. Developed procedures for hand generated test deck.	0	0	0	0	0	0
5. Developed procedures for computer generated test deck.	0	0	0	0	0	0
6. Completed hand generated test deck with: general directions, specific directions, seven kinds of items	0	0	0	0	0	0
7. Completed computer generated test deck with: general directions, specific directions, seven kinds of items	0	0	0	0	0	0
8. Completed second set of test decks.	0	0	0	0	0	0

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT III: PLANNING AND ADMINISTERING TESTS

Module CS-III-3: Classroom Tests: Assemble, Administer, Score

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

INTRODUCTION

The process of testing from the original writing of the test items to the notification of results to students is a time consuming activity. No small part of that process is the selection of appropriate items to assess student knowledge, attitude and performance. When the items have been selected, typed and duplicated, the test is ready to be given to the students. When the students have finished the test, it must be scored. Today we have, in addition to hand scoring, computer scoring which takes much of the drudgery out of the scoring process. Processing, administering and scoring tests seems to be a logical sequence to include in an instructional division; therefore, this module is devoted to those aspects of classroom testing.

ASSEMBLING--ADMINISTERING--SCORING

ABOUT THIS MODULE

Competencies to be Gained:

1. Assemble teacher-made tests.
2. Administer teacher-made tests.
3. Score teacher-made tests.

Objectives:

After completing this module, you will be able to:

1. Arrange test items by difficulty, type, content and use.
2. Arrange test directions.
3. Develop an answer system for constructed tests.
4. Arrange for test and scoring system duplication.
5. Develop and carry out test administration procedures as recommended by leading testing services.
6. Describe and use hand scoring procedures for classroom test (#4).
7. Describe and use computer scoring for classroom tests (#4).
8. Identify unique advantages of computer assisted test scoring.

Resources:

Text: Erickson, Richard C. and Tim L. Wentling. Measuring Student Growth, Boston: Allyn and Bacon, Inc., 1976, pp. 233-258 and 337-355.

References:

Brown, Frederick G. Measurement and Evaluation, Itasca, IL, F.E. Peacock Publishers, Inc., 1971, pp. 70-71 and 74-77.

Green, John A. Teacher-Made Tests, New York: Harper & Row, 1975, pp. 101-103.

Gronlund, Norman E. Measurement and Evaluation in Teaching, 3rd Edition, New York: MacMillan Pub. Co., 1976, pp. 249-263.

Lien, Arnold J. Measurement and Evaluation of Learning, Dubuque, Iowa: Wm. C. Brown Company, 1971, pp. 66-70 and 103-110.

If you feel competent to perform the objectives as outlined, proceed to the module performance assessment test.

If you feel the need for additional experience to meet the objectives, proceed to the learning experiences of this module.

Learning Experience I

Required: Text reading and producing a classroom test.

Optional: Other reference reading and develop a second test.

Learning Experience II

Required: Text reading and develop written test administration format.

Optional: Other reference reading and second test administration format.

Learning Experience III

Required: Text reading and development of score sheet and hand and computer processing of scores.

Optional: Other reference reading and unique scoring process.

LEARNING EXPERIENCE I

Objectives:

After completing this activity, you will be able to assemble teacher-made tests through:

1. Arranging test items by difficulty, type, content and use.
2. Writing succinct test directions.
3. Developing an answering system for classroom tests.
4. Arranging for test and answering system duplication.

Activity:

Read text materials on pages 237-242 and 256-258. Produce a classroom test where the test items are arranged by difficulty, type, content and use complete with general directions for the test and individual directions for each sub-section. Have duplicated in the proper manner for the number of copies needed.

Optional Activity:

Read other references as follows: Brown, 70-71; Gronlund, 249-259 and Lien, 103-110. Produce a second test with the same parameters as listed in the required activity.

Assessment:

Your competency on this activity will be evaluated through the module performance assessment test.

LEARNING EXPERIENCE II

Objectives:

After completing this activity, you will be able to administer tests according to recommendations presented by expert testing services.

Activity:

Read text materials on pages 337-350. Select one of your tests and the room it might be administered in and develop in written form all the necessary considerations for administering that test.

Optional Activity:

Read other references as follows: Gronlund, 259-261 and Lien, 66-67. Using another test and a different test location, repeat required activity.

Assessment:

Your competency on this activity will be evaluated on the module performance assessment test.

LEARNING EXPERIENCE III

Objectives:

After completing this activity, you will be able to score teacher-made tests both by hand and with computer assistance. As evidence of this ability, you will be able to:

1. Describe and use hand scoring procedures.

2. Describe and use computer scoring procedures.

3. Identify unique advantages of computer assisted scoring.

Activity:

Read text materials on pages 242-255 and 351-355. Develop the necessary answer sheet for your test. Utilize the hand scoring technique and if possible, have the answer sheets computer processed. Indicate in writing information that is available through computer scoring that is not available through hand scoring.

Optional Activity:

Read the following references: Brown, 74-77; Green, 101-103; Gronlund, 261-263 and 371-373 and Lien, 67-70. Develop one of the special answering sheets and scoring devices listed in your text for one of your tests.

Assessment:

Your competency on this activity will be evaluated on the module performance assessment test.

MODULE PERFORMANCE ASSESSMENT TEST

Assemble, Administer and Score Classroom Tests

DIRECTIONS: Indicate the level of accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable or impossible to execute, place an X in the N/A box.

		LEVEL OF PERFORMANCE					
	Test Assembly	N/A	None	Poor	Fair	Good	Excellent
1.	Test arrangement by type	0	0	0	0	0	0
2.	Test arrangement by difficulty	0	0	0	0	0	0
3.	Test arrangement by content and use	0	0	0	0	0	0
4.	General directions	0	0	0	0	0	0
5.	Specific sub-section directions	0	0	0	0	0	0
6.	Appropriate duplication	0	0	0	0	0	0
7.	Optional test as listed	0	0	0	0	0	0
	Test Administration						
8.	Test related developed considerations	0	0	0	0	0	0
9.	Room related developed considerations	0	0	0	0	0	0
10.	Optional activity	0	0	0	0	0	0
	Scoring the Test						
11.	Answering forms	0	0	0	0	0	0
12.	Hand scoring procedures	0	0	0	0	0	0
13.	Computer scoring procedures	0	0	0	0	0	0
14.	Computer advantage paper	0	0	0	0	0	0
15.	Optional scoring device	0	0	0	0	0	0

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT IV: PROCESSING AND UTILIZING EVALUATION INFORMATION

Module CS-IV-1: Analyze Test Results

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

INTRODUCTION

When teachers write and administer tests, they constantly are concerned with a number of aspects; namely, do the items written convey my intentions to the students? has the material been covered either in class or through study materials? are the questions written at a reading level appropriate for the students? will the test identify the students that really have the competencies? will the results show areas where improvement can be made?

To obtain data to assist in getting answers to some of the concerns, tests have to be analyzed. Scoring procedures, item analysis and discrimination studies all provide means for gathering the data to assist the instructor.

This module covers the scoring and analysis of tests especially item analysis.

ABOUT THIS MODULE

Competencies to be Gained:

Analyze test results obtained on examinations administered to students.

Objectives:

After completing this module, you will be able to:

1. Develop scoring procedures for tests.
2. Describe purposes for carrying out evaluation instrument analysis.
3. Conduct item analyses on tests used both by hand and through computer processing.
4. Interpret instrument analysis.
5. Recommend changes based on analysis results.

Pre-requisites:

The student must have appropriate sets of tests from their classroom, and the objectives each test was designed to assess. The instructional plan used would help in final decision-making concerning the analysis outcomes.

Resources:

Text: Erickson, Richard C. and Tim L. Wentling. Measuring Student Growth. Boston: Allyn and Bacon, Inc., 1976, pp. 259-277 and 351-355.

References:

Brown, Frederick G. Measurement and Evaluation. Itasca, IL, F. E. Peacock Publishers, Inc., 1971, pp. 74-77 and 82-92.

Green, John A. Teacher-Made Tests. New York: Harper & Row Publishers, 1975, pp. 101-103.

Gronlund, Norman E. Measurement and Evaluation in Teaching, 3rd Edition, New York: MacMillan Pub. Co., Inc., 1976, pp. 259-278 and 483-500.

Lien, Arnold J. Measurement and Evaluation of Learning. Dubuque, Iowa: Wm. C. Brown Company, 1971, pp. 123-127.

Smith, Fred M. and Sam Adams. Educational Measurement for the Classroom Teacher. New York: Harper & Row Pub., 1972, pp. 221-231.

If you feel you have already mastered the objectives of this module, proceed to the module's teacher performance assessment test.

If you need further experience, proceed to the learning experiences suggested in this module.

Learning Experience I

Required: Read text materials as indicated and develop methods for scoring objective tests and develop essay test scoring devices.

Optional: Read additional references and write a paper on "correction for guessing".

Learning Experience II

Required: Read text materials and list and describe various aspects of analyzing test scores.

Optional: Read additional references.

Learning Experience III

Required: Read text materials on item analysis and carry out an item analysis on a test.

Optional: Read additional references and conduct a criterion referenced item analysis.

Learning Experience IV

Required: Read text materials on evaluating teacher made tests, especially covering validity and reliability and carry out a content validity check on one of your tests. Use the computer in carrying out reliability and validity checks.

Optional: Read additional references and run a validity co-efficient and an alternate forms co-efficient.

Learning Experience V

Required: Using completed item analysis, revise test items as needed.

Optional: Revise test analyzed for content validity.

LEARNING EXPERIENCE I

Objective:

After completing the activity suggested in this learning experience, you will be able to recognize the advantages and limitations of and develop scoring procedures for tests you have administered to students.

Activity:

Read text materials on pages 351-355, making use of materials read and using a test you have written and administered, develop at least two methods for scoring objective type test items and produce three examples of essay type scoring devices for essay questions. (If you have not given any essay questions, you will be required to write some for this activity.)

Optional Activity:

Read additional information on this topic as follows: Brown, pp. 74-76; Green, pp. 101-103; Gronlund, pp. 244-246 and 261-263.

Write a short treatise on the "correction for guessing" process used by some teachers with objective type tests.

Assessment:

Your competency on this objective will be evaluated on the module performance test.

LEARNING EXPERIENCE II

Objective:

After having completed this activity, you will be able to describe the purposes for evaluating results of instruments used.

Activity:

Read text materials on pp. 259-263. After having completed the reading, list and describe the various aspects of analyzing test scores.

Optional Activity:

Read Gronlund, pp. 489-500.

Assessment:

Your competency on this objective will be evaluated on the module performance test.

LEARNING EXPERIENCE III

Objective:

After completing this activity, you will be able to conduct item analyses on tests you administer in your classes.

Activity:

Read text materials covering item analysis on pages 263-277. Using the information gained in the reading and an appropriate set of test papers, conduct a norm-referenced item analysis producing both difficulty indices and discrimination indices.

Optional Activity:

Read materials on item analyses in any or all of the following references: Brown, pp. 85-92; Gronlund, pp. 263-274; Lien, pp. 123-217; Smith and Adams, pp. 225-230. With an appropriate set of test papers, conduct a criterion-referenced item analysis.

Assessment:

Your competency on this objective will be evaluated on the module performance test found on last pages of this module.

LEARNING EXPERIENCE IV

Objective:

After completing this activity, you will be able to describe the four test validity types, the four test reliability co-efficients and indicate possible uses on classroom tests.

Activity:

Read text materials covering validity and reliability under the evaluating teacher made instruments found on pages 277-292. Indicate which of the validity types and reliability co-efficients are most appropriate for classroom tests. Carry out a content validity check on one of your examinations.

Optional Activity:

Read from the following references covering validity and reliability: Green, pp. 83-99; Gronlund, pp. 81-103 and 105-125; Lien, pp. 41-57. Run a validity co-efficient on one of your tests. Run an alternate forms reliability co-efficient on a set of your alternate forms tests.

Assessment:

Your competency on this objective will be evaluated on the module performance test.

LEARNING EXPERIENCE V

Objective:

After completing this activity, you will be able to revise test instruments as dictated by results of the analysis.

Activity:

Using the item analysis conducted in Learning Experience III, make revisions to questions as dictated by the easiness percentage and the discrimination indices.

Optional Activity:

Revise the test analyzed in Learning Experience IV under the content validity activity or the split half reliability co-efficient activity.

Assessment:

Your competence on this objective will be evaluated on the module performance test.

MODULE PERFORMANCE ASSESSMENT TEST

Analyze Test Results

DIRECTIONS: Indicate the level of accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable or impossible to execute, place an X in the N/A box.

Scoring Tests	LEVEL OF PERFORMANCE					
	N/A	None	Poor	Fair	Good	Excellent
1. Developed scoring procedures for objective-type tests	0	0	0	0	0	0
2. Developed scoring procedures for essay type tests.	0	0	0	0	0	0
3. Write tests as needed to carry out activity.	0	0	0	0	0	0
4. Wrote paper on "correction for guessing" process.	0	0	0	0	0	0
Purposes for Instrument Evaluation						
5. Listed the aspects of analyzing test scores.	0	0	0	0	0	0
6. Described the aspects of analysis.	0	0	0	0	0	0
Item Analysis						
7. Carried out a "norm-referenced" item analysis.	0	0	0	0	0	0
8. Produced a difficulty index.	0	0	0	0	0	0
9. Produced a discrimination index.	0	0	0	0	0	0
10. Carried out a "criterion-referenced" item analysis.	0	0	0	0	0	0
Validity-Reliability Analysis						
11. Identified validity types most appropriate for classroom use.	0	0	0	0	0	0
12. Identified reliability co-efficients most appropriate for classroom use.	0	0	0	0	0	0
13. Carried out a "content" validity check on a test.	0	0	0	0	0	0

		N/A	None	Poor	Fair	Good	Excellent
14.	Completed a split-half reliability co-efficient.	0	0	0	0	0	0
15.	Ran a validity co-efficient.	0	0	0	0	0	0
16.	Ran an alternate forms reliability co-efficient.	0	0	0	0	0	0
	Tests						
17.	Revised questions on the easiness percentage mode.	0	0	0	0	0	0
18.	Revised questions on the discrimination index.	0	0	0	0	0	0
19.	Revised test on the content validity analysis.	0	0	0	0	0	0
20.	Revised test on the reliability co-efficient analysis.	0	0	0	0	0	0

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT IV: PROCESSING AND UTILIZING EVALUATION INFORMATION

Module GS-IV-2: Statistical Analysis

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

INTRODUCTION

Once the teacher has administered a test, decisions must be made on how to handle the results. Results in the case of tests are generally the scores students received on the test. A number of options are open to the teacher in assigning marks or grades: The scores can be ordered and grades assigned at breaks in the score order, the scores can be changed to a percentage of the total possible and grades assigned, the scores can be added to other point inputs and graded, and the scores can be treated statistically and the results processed into grades. No doubt there are other methods used by teachers, almost as many methods as teachers.

This module addresses itself to the statistical treatment of teacher's classroom examinations. Scores students receive on classroom tests can be statistically processed by rank ordering, calculating measures of central tendency, determining measures of dispersion, constructing frequency distribution, compute percentile ranks and centile points, and assigning standard scores.

ABOUT THIS MODULE

Competencies to be Gained:

Conduct statistical analyses on sets of classroom test data and suggest applications of the statistics.

Objectives:

After completing this module, you will be able to:

1. Define the terms of and recognize the symbols used in test analysis.
2. Rank order any set of test scores.
3. Construct a frequency distribution.
4. Calculate percentile ranks and centile points.
5. Calculate measures of central tendency.
6. Calculate measures of dispersion.
7. Suggest classroom utilization of statistics.

Pre-requisites:

Student test scores from either tests you have administered or a series of scores provided by the course instructor in the module.

Resources:

Text: Erickson, Richard C. and Tim L. Wentling. Measuring Student Growth, Boston: Allyn and Bacon, Inc., 1976, pp. 355-376.

References:

Green, John A. Teacher-Made Tests. New York: Harper & Row Publishers, 1975, Chapter 9.

Gronlund, Norman E. Measurement and Evaluation in Teaching. 3rd Edition, New York: MacMillan Pub. Co., Inc., 1976, pp. 539-556.

Lien, Arnold J. Measurement and Evaluation of Learning. Dubuque, Iowa: Wm. C. Brown Pub., 1971, pp. 168-181.

If you feel you have mastered the competency by being able to meet all objectives stated, proceed to the module Performance Assessment Test.

If you need experience in statistics, proceed to the learning experiences.

Learning Experience I

Required: Read textbook materials as indicated in the reference listing and complete definition of terms.

Optional: Read from other sources as listed in the references.

Learning Experience II

Required: Place series of test scores in rank order.

Optional: Select additional test scores in rank order.

Learning Experience III

Required: Construct a frequency distribution using a series of student test scores.

Optional: Repeat the required activity with another set of scores.

Learning Experience IV

Required: Determine percentile ranks. Determine centile points.

Optional: Repeat the required activity with another set of scores.

Learning Experience V

Required: Calculate the mean, median, and mode for a set of scores.

Optional: Complete a second experience of mean, median, and mode with another set of scores.

Learning Experience VI

Required: Calculate the range, quartile deviation, and standard deviation for a set of scores.

Optional: Repeat calculations of range, quartile deviation, and standard deviation with another set of test scores.

Learning Experience VII

Required: Compile a list of applications of statistics for classroom use.

Optional: None

LEARNING EXPERIENCE I

Objective:

After completing the required reading, you will be able to define the several terms and symbols used in statistics.

Activity:

Read text materials pp. 355-376. Write out definitions for the following terms: arithmetic, mean average, decile, deviation, frequency distribution, median, mode, n, normal distribution, percentile, percentile rank, quartile range, and raw score.

Optional Activity:

Read additional references as listed in the reference list.

Assessment:

Your competence on this activity will be evaluated on the module Performance Assessment Test.

LEARNING EXPERIENCE II

Objective:

After completing this activity, you will be able to rank any set of test scores.

Activity:

Take each of the following sets of test scores and place them in order by placing the highest score at the top and continuing down through the scores until the lowest score is at the bottom.

68	59	55	66	79
45	58	37	6[illegible]	26
59	37	41	63	8[illegible]
54	54	90	62	5[illegible]
73	54	74	66	56
67	59	77	69	4[illegible]
64	65	69	41	4[illegible]
75	46	60	6[illegible]	56
				46

Once the scores are ordered from highest to lowest, assign ranks to them by starting with number one at the top and number on down to the last or lowest score.

Go back and average any ranks where two or more scores of the same value occur.

Optional Activity:

Take any set of test scores available: one of your tests, another set the instructor assigns or a set from one of the references.

Assessment:

Your competence on this activity will be evaluated on the module Performance Assessment Test.

LEARNING EXPERIENCE III

Objective:

After completing the required activity of this module, you will be able to construct a frequency distribution.

Activity:

Take the following series of test scores and set them up in a frequency distribution following the procedures outlined in the text on pages 358-359 or as presented in Green, pages 122-123; Gronlund, pages 546-547; or Lien on pages 169-170.

44	59	43	42	35	31	41	47
50	24	48	45	44	48	48	55
41	41	40	34	51	43	38	40
46	50	30	3k	49	33	30	52
43	37	53	52	41	50	52	42
45	32	49	45	36	39	30	51
	32	39					

Optional Activity:

Select a series of test scores from your classroom test or from one of the sources listed above and construct another frequency distribution.

Assessment:

Your ability to perform this competency will be evaluated on the module performance assessment test.

LEARNING EXPERIENCE IV

Objective:

After completing this activity, you will be able to calculate percentile ranks and centile points.

Activity:

Using the rank ordered scores in Learning Experience II, the procedure outlined in the text on pages 361-363, determine the percentile ranks for the following scores from that series. Series I; 75, 64, 54 and Series II: 90, 60, 41.

Using the scores in the frequency distribution from Learning Experience III, calculate the following centile (percentile) points. Use the procedure for calculating the median (P50) as all other centiles are calculated similarly: P10, P25, P38, P65, and P87.

Optional Activity:

Using the scores in the frequency distribution from Learning Experience III, calculate the percentile ranks for the following scores: 31, 46, and 59.

Using the data in Series I in Learning Experience II, calculate the following percentiles (centiles): P15, P40, and P93.

Assessment:

Your competency at calculating percentile ranks and percentiles will be evaluated on the module Performance Assessment Test.

LEARNING EXPERIENCE V

Objective:

After completing this activity, you will be able to calculate the measures of central tendency, namely the mean, median, and mode.

Activity:

Using the scores found in the frequency distribution from the Learning Experience III and following the procedures for calculating measures of central tendency found on pages 363-367 of the text; pp. 127-129, 132 in Green; pp. 541-543, 548-549, 551 in Gronlund or pp. 171-173 in Lien, calculate the mean, median, and mode for the set of scores.

Optional Activity:

Calculate the mean, median, and mode for the Series II scores from Learning Experience II.

Assessment:

Your competency with measures of central tendency will be evaluated on the module Performance Assessment Test.

LEARNING EXPERIENCE VI

Objective:

After completing this activity, you will be able to calculate the measures of dispersion, namely the range, standard deviation, and the quartile deviation (semi-interquartile range).

Optional Activity:

Calculate the range, semi-interquartile range and the standard deviation on the Series I scores from Learning Experience II.

Assessment:

Your competency in calculating the measures of dispersion will be evaluated on the module Performance Assessment Test.

LEARNING EXPERIENCE VII

Objective:

After completing this activity, you will be able to suggest ways to use statistics in the classroom.

Activity:

Using the material presented in the text on pages 355-357, 362-363, 367-370, and 373-385 or from the following references: Green, pp. 123-127, 130; Gronlund, pp. 539-540, 544-545, 547-548; and Lien, pp. 168-169, 173-174, 179, list uses for statistics in the classroom and in life in general.

Assessment:

Your competency in this activity will be evaluated on the module Performance Assessment Test.

MODULE PERFORMANCE ASSESSMENT TEST

DIRECTIONS: Complete all of the following staitstical activities and when completed, have your instructor evaluate your results. Place answers on the answer sheet.

Section I: Terms and Symbols

1. The term central tendency refers to the process of scores obtained from a measurement instrument to:

   A. cluster near the middle of a continuum.
   B. vary evenly throughout a continuum.
   C. collect about the low end of a continuum.
   D. bunch at both ends of a continuum.

2. A point on a score scale that divides the number of scores into two equal groups is called the:

   A. mean
   B. median
   C. mode
   D. midpoint

3. A computed unit for measuring how far a score deviates from the mean of the group is:

   A. the range
   B. a standard deviation
   C. a quartile
   D. the quartile deviation

4. The first step in setting up a frequency distribution is to:

   A. rank the scores.
   B. determine interval size.
   C. tally the scores.
   D. determine the range.

5. A raw score is:

   A. the number of items correctly answered.
   B. the number of points awarded by the scorer.
   C. the number of responses falling into a given category.
   D. all of the above are descriptions of raw score.

6. The raw score helps the student determine:

   A. how well he did on an examination.
   B. how he compares to other students taking the exam.
   C. what grade he will get in the course.
   D. the raw score does none of the above.

7. If a student's rank was listed as being 8.5 and there were twenty students being ranked, we could say:

   A. there was an error in ranking.
   B. there was really twenty-one students being ranked.
   C. there were a number of students with the same scores.
   D. no one ranked at either 8 or 9 therefore 8.5 had to be used.

8. A student whose percentile rank on an examination was 78. The student:

   A. has a score that makes him better than 78% of the group.
   B. has a score that makes him poorer than 78% of the group.
   C. has a score that indicates he answered 78% of the questions.
   D. has a raw score of 78.

9. A percentile (P60) of 60 is:

   A. a score where a student made 60%.
   B. a point on the scale where 60% fall below.
   C. a percentage of the students equal to 60%.
   D. none of the above describes P60.

10. Percentile ranks are easily understood by students, parents, administrators, and teachers because:

    A. the percentile rank scale is based on 100.
    B. the percentile rank refers to a percentage of questions.
    C. the percentile rank refers to the raw scores of the tests.
    D. none of the above.

11. The most common measure of central tendency is:

    A. the mode.
    B. the median.
    C. the mean.
    D. the midpoint.

12. The mean is:

    A. the average.
    B. the sum of the scores divided by the number of scores.
    C. takes all the scores into account for calculation.
    D. all of the above.

13. The median:

    A. is a point on the raw score scale.
    B. is affected by extreme scores.
    C. is used with the range.
    D. none of the above.

14. The mode:

    A. takes into account all measures (scores).
    B. is a crude measure of central tendency.
    C. is influenced by extreme scores.
    D. is all of the above.

15. The measures of central tendency:

A. describe the whole group.
B. provides a comparison point for individual scores.
C. can be used when further statistics are being calculated.
D. all of the above.

16. The most crude measure of dispersion is:

A. the quartile deviation.
B. the standard deviation.
C. the range.
D. the decile deviation.

17. The most stable measure of dispersion is:

A. the quartile deviation.
B. the standard deviation.
C. the range.
D. the decile deviation.

18. The measure of dispersion used with the median as the measure of central tendency is:

A. the quartile deviation.
B. the standard deviation.
C. the range.
D. the decile deviation.

19. The measure of dispersion that enables teachers to normalize their student's performance is the:

A. the quartile deviation.
B. the standard deviation.
C. the range.
D. the decile deviation.

20. The most useful measure of dispersion for interpreting test results and describing the student against the norm group is:

A. the quartile deviation.
B. the standard deviation.
C. the range.
D. the decile deviation.

Matching

Directions: Match the symbol in Column B to the statistic in Column A by placing the letter of the symbol in the appropriate blank on the answer sheet.

	COLUMN A	COLUMN B
21.	Mean	A. S.D.
22.	Median	B. X
23.	Mode	C. P.R.
24.	Number	D. Mn
25.	Range	E. f
26.	Standard Deviation	F. Mo
27.	Summation	G. R
28.	Score	H. Md
29.	Percentile Rank	I. E
30.	Frequency	J. N
		K. z
		L. w

Section II: Calculations

Directions: Below is a set of test scores similar to a set you might get from a test you may have administered. Calculate all the statistics asked for and place your answer on the answer sheet.

Series of Scores:	90	56	79	58	94
	55	54	55	77	73
	77	74	46	54	46
	45	41	41	37	66
	67	66	26	37	31

31-35. Place the above scores in rank order and assign ranks to them.

36-40. Construct a frequency distribution using the above scores.

41-43. Calculate the percentile rank for the scores: 55, 79, and 46.

44-45. Determine percentiles P15 and P83.

46. Calculate the Mean for the distribution.

47. Calculate the Median for the distribution.

48. Calculate the Mode for the distribution.

49. Calculate the Range.

50-55. Calculate the Standard Deviation.

56-60. Calculate the Quartile Deviation.

ANSWER SHEET FOR
MODULE PERFORMANCE ASSESSMENT TEST

Section I - Terms and Symbols

1. _____	11. _____	21. _____
2. _____	12. _____	22. _____
3. _____	13. _____	23. _____
4. _____	14. _____	24. _____
5. _____	15. _____	25. _____
6. _____	16. _____	26. _____
7. _____	17. _____	27. _____
8. _____	18. _____	28. _____
9. _____	19. _____	29. _____
10. _____	20. _____	30. _____

Section II - Calculations

31. - 35. Rank Orders

36. - 40. **Frequency Distribution**

SCORES	TALLY	f	Cf	X	X^2		

41. PR of 55 _____

42. PR of 79 _____

43. PR of 46 _____

44. P15 _____

45. P83 _____

46. Mean _____

47. Mediun _____

48. Mode _____

49. Range _____

50. - 55. Standard Deviation

56. - 60. Quartile Deviation

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT IV: PROCESSING AND UTILIZING EVALUATION INFORMATION

Module GS-IV-3: PBTE Module D-5 Determining Student Grades

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

ABOUT THIS MODULE

To complete the competencies for this module, complete PBTE Module D-5, Determine Student Grades.

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT V: COMPETENCY BASED EVALUATION

Module GS-V-1: Competency Based Evaluation

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

INTRODUCTION

Competency based evaluation is a concept that has been used for many years. It has been known by many names, but titles of "mastery learning" or "mastery evaluation became common jargon for educators at least a decade ago. Competency based evaluation is essentially a continuation of an evaluation system that uses attainment of specified competencies in establishing a performance mark or grade.

This module will involve students in studying the basic concept of competency based instruction and the use of competency based evaluation.

ABOUT THIS MODULE

Competencies to be Gained:

1. Summarize the purposes of competency based learning, with emphasis upon competency based evaluation.

Objectives:

After completing this module, you will be able to:

1. Define competency based:
   a. instruction, and
   b. evaluation.

2. Differentiate between competency based evaluation and other types of evaluation.

3. Identify basic uses of competency based evaluation.

4. Develop a competency based evaluation system.

Resources:

Text: Note the course text does not contain adequate information pertaining to the topic. Use the reference text identified below and current journal articles on the topic.

References:

Green, John A. Teacher-Made Tests. New York: Harper & Row Publishers, 1975, Chapter 3.

Current journal articles.

Block, James H., Editor, Mastery Learning-Theory and Practice, Holt, Rinehart and Winston, Inc., 1971.

If you feel you have the competencies as stated, proceed to the Module Performance Assessment Tests.

If you feel the need for further study, do the module learning experiences.

Learning Experience I

Required: Read required text material by Green and define and differentiate between normative based evaluation and competency based evaluation.

Optional: Read additional materials on competency based learning.

Learing Experience II

Required: Read text material by Green and other personally selected material about competency based evaluation and:

1. Cite at least five reasons for using competency based evaluation.

2. Prepare a system for using competency based evaluation. (This system must contain a marking or grading scheme.

Optional: Read selected materials on competency based evaluation and identify several schemes for assigning marks or grades.

MODULE PERFORMANCE ASSESSMENT TEST

Complete this form using the directions below.

DIRECTIONS: Indicate the level of the accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable or impossible to execute, place an X in the N/A box.

	LEVEL OF PERFORMANCE					
DEFINITIONS	N/A	NONE	POOR	FAIR	GOOD	EXCELLENT
1. Definition of competency based instruction.	0	0	0	0	0	0
2. Definition of competency based evaluation.	0	0	0	0	0	0
3. Differentiated between competency based evaluation and other types of evaluation (normative).	0	0	0	0	0	0
COMPETENCY BASED EVALUATION SYSTEM						
4. Grade level identified.	0	0	0	0	0	0
5. Rationale for the grading system.	0	0	0	0	0	0
6. Appropriateness of grades or marks.	0	0	0	0	0	0
7. Completeness of evaluation scheme.	0	0	0	0	0	0

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT VI: EVALUATING INSTRUCTIONAL EFFECTIVENESS

Module GS-VI-1: The Evaluation Process: Aid to Instructional Improvement

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

INTRODUCTION

Measurement and evaluation processes provide data for numerous purposes. One of the more important purposes is the improvement of instruction. Those aspects of the process that identify student difficulties can indicate needs for instructional revisions to assist students in success experiences. Analysis also helps point out voids in the instructional portions of the course.

Once problem situations have been identified, the teacher must implement changes to remedy the situations. This ability to locate problems and bring about changes provides one of the rewarding experiences in the teaching function.

This module directs itself to instructional improvement through the evaluation process.

ABOUT THIS MODULE

Competency to be Gained:

Utilize results of the measurement and evaluation process to revise instruction for increasing instructional effectiveness.

Objectives:

After completing this module, you will be able to:

1. With the aid of item analysis data on an examination, locate areas of instruction needing attention.
2. Present alternate possibilities for improvement that show up on the analysis especially related to student performance.
3. Suggest changes in future teacher performance because of conditions that were identified on item analysis.
4. Suggest changes in instructional content to bring about different student performance.

Pre-requisites:

In order to complete this module, each student must have available completed test forms from some class he teaches or be supplied with an appropriate set of test forms. Note: Tests taken by students in this course may be acceptable for this activity.

Resources:

Text: Erickson, Richard C. and Tim L. Wentling. Measuring Student Growth, Boston: Allyn and Bacon, Inc., 1976, pp. 408-413 and 419-426.

References:

Brown, Frederick G. Measurement and Evaluation. Itasca, IL: F.E. Peacock Pub., Inc., 1971, pp. 160-176.

Gronlund, Norman E. Measurement and Evaluation in Teaching, 3rd Edition, New York: MacMillan Pub. Co., Inc., 1976, pp. 483-510.

If you feel you have mastered the competency through meeting all objectives, proceed to the module Performance Assessment Test.

If you feel additional experiences are necessary to meet the objectives, proceed to the learning experiences.

Learning Experience I

Required: Read text materials on pp. 418-426. List procedures and actions for improvement.

Optional: Read Gronlund, pp. 483-500 and list and describe steps in diagnosing and remedying learning difficulties.

Learning Experience II

Required: List actions to be taken to remedy instruction for improvements.

Optional: None

LEARNING EXPERIENCE I

Objective:

With the aid of completed item analysis of tests, both hand scored and computer processed, locate areas of instruction needing some type of attention.

Activity:

Read text materials on pp. 419-426. List the procedures or actions that can be taken to improve instruction. Using available completed item and the list of five modification areas on page 422, determine areas where improvement might be made in the course.

Optional Activity:

Read the following additional references: Gronlund, pp. 483-500. List and describe the four steps in diagnosing and remedying learning difficulties. Relate how item analysis may be utilized in this process.

Assessment:

Your competence on meeting this objective will be evaluated on the Module Performance Test.

LEARNING EXPERIENCE II

Objective:

Using the analysis of results obtained in Learning Experience I and the improvement areas identified, recommend action to bring about changes.

Activity:

List, under each trouble area identified through analysis, the actions you as the instructor will take to remedy the situation.

Optional Activity: None

Assessment:

Your competence on this objective will be evaluated on the Module Performance Test.

MODULE PERFORMANCE ASSESSMENT TEST

DIRECTIONS: Indicate the level of accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable or impossible to execute, place an X in the N/A box.

	LEVEL OF PERFORMANCE					
Identifying Problem Areas	N/A	None	Poor	Fair	Good	Excellent
1. Item analysis completed.	0	0	0	0	0	0
2. Modification areas identified.	0	0	0	0	0	0
3. Procedures or action listed.	0	0	0	0	0	0
4. Optional Reading-four steps listed and described.	0	0	0	0	0	0
5. Item analysis assessed.	0	0	0	0	0	0
Recommended Action						
6. List actions for improvement in teacher performance.	0	0	0	0	0	0
7. List actions for improvement in student performance.	0	0	0	0	0	0
8. List changes in content proposed.	0	0	0	0	0	0

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT VI: EVALUATING INSTRUCTIONAL EFFECTIVENESS

Module GS-VI-2: PBTE Module D-6 Evaluate Your Instructional Effectiveness

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

ABOUT THIS MODULE

To complete competencies for this module, complete PBTE Module D-6, Evaluate Your Instructional Effectiveness.

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT VII: STANDARDIZED AND COMMERCIAL EVALUATION DEVICES

Module GS-VII-1: Standardized and Commercial Evaluation Instruments: Identification

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

INTRODUCTION

A complete evaluation program requires varied and comprehensive input. Generally the classroom teachers are aware of the tests, rating scales, checklists and performance tests they use to assess student performance and teacher effectiveness. Commercial evaluation instruments by the score are available and in many cases used. Counseling centers in most educational institutions administer the instruments and keep results on record. The classroom teachers should be familiar with where these commercial test directories are located, how to use the directories, how to interpret the data in the directories and be able to administer appropriate tests. Further, the classroom teachers should be able to interpret the results to the student and for instructional improvements.

ABOUT THIS MODULE

Competency to be Gained:

Identify appropriate commercially available standardized evaluation instruments for classroom use.

Objectives:

After completing this module, the student will be able to:

1. Locate directories of commercially available standardized instruments.
2. Use directories to locate tests suitable for classroom use.
3. Suggest tests for use in the classroom assignment.

Pre-requisites: None

Resources:

Text: Erickson, Richard C. and Tim L. Wentling. Measuring Student Growth, Boston: Allyn and Bacon, Inc., 1976, pp. 297-307.

References:

Gronlund, Norman E. Measurement and Evaluation in Teaching, 3rd Edition, New York: MacMillan Pub. Co., 1976, pp. 290-311.

Lien, Arnold J. Measurement and Evaluation of Learning. Dubuque, Iowa, Wm. C. Brown Pub., 1971, pp. 56-66.

Smith, Fred M. and Sam Adams. Educational Measurement for Classroom Teacher, 2nd Edition, New York: Harper & Row Publishers, 1972, pp. 261-266.

If you feel you have the competency as identified through the objectives, proceed to the module performance assessment test.

If you need to develop the competency or any parts thereof, proceed to the learning experiences.

Learning Experience I

Required: Read text pp. 304-307. Visit the library and the librarian and compile a list of directories.

Optional: None

Learning Experience II

Required: Read text pp. 297-304 and 307-321. Peruse test directories list standardized test available for occupational area.

Optional: Read Gronlund, 290-314; Lien, 62-66 and Smith and Adams, pp. 261-266.

Learning Experience III

Required: Recommend one general test and two occupational tests.

Optional: Recommend an achievement, a reading, a diagnostic and an interest inventory.

LEARNING EXPERIENCE I

Objective:

After completing this activity, you will be able to locate directories of commercially available standardized test instruments.

Activity:

Read text materials on pp. 304-307, make a library visit and contact the librarian for assistance, compile a list of directories of commercial standardized test instruments.

Optional Activity: None

Assessment:

Your competence on this objective will be evaluated on the module Performance Assessment Test.

LEARNING EXPERIENCE II

Objective:

After having completed this activity, you will be able to use the directories located in Learning Experience I for locating appropriate standardized tests.

Activity:

Read text materials on pp. 297-304 and 307-321, refer to sections of the directories covering contents and how to use the directory, list some available standardized test peculiar to your vocational specialty. Also, list some test of a general nature that may have support value to your field.

Optional Activity:

Read the following additional references: Gronlund, pp. 290-314; Lien, pp. 62-66; Smith and Adams, 261-266.

Assessment:

Your competence on the objective will be evaluated on the module Performance Assessment Test.

LEARNING EXPERIENCE III

Objective:

After completing this activity, you will be able to suggest tests suitable for use as a part of your instructional program.

Activity:

Using the data collected in Learning Experience II, recommend at least one general type commercial standardized instrument and two occupationally oriented commercial standardized instruments.

Optional Activity:

Using Learning Experience II data, recommend an achievement test, a reading test, a diagnostic test and an interest inventory with possible value to your instructional area.

Assessment:

Your competence will be evaluated on the module Performance Assessment Test.

MODULE PERFORMANCE ASSESSMENT TEST

Directions: Indicate the level of accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable or impossible to execute, place an X in the N/A box.

		LEVEL OF PERFORMANCE					
	Locate Directories	N/A	None	Poor	Fair	Good	Excellent
1.	Read and made a library visit.	0	0	0	0	0	0
2.	Compiled a list of directories.	0	0	0	0	0	0
	Locate Tests						
3.	Read all assignments in text and directories.	0	0	0	0	0	0
4.	List vocational specialty tests.	0	0	0	0	0	0
5.	List general type tests.	0	0	0	0	0	0
6.	Additional reference reading.	0	0	0	0	0	0
	Suggest Specific Tests						
7.	Recommend general commercial test.	0	0	0	0	0	0
8.	Recommend occupational tests.	0	0	0	0	0	0
9.	Achievement test.	0	0	0	0	0	0
10.	Reading test.	0	0	0	0	0	0
11.	Diagnostic test.	0	0	0	0	0	0
12.	Interest inventory.	0	0	0	0	0	0

EVALUATION OF INSTRUCTION IN VOCATIONAL EDUCATION

UNIT VII: STANDARDIZED AND COMMERCIAL EVALUATION DEVICES

Module GS-VII-2: Standardized and Commercial Evaluation Instruments: Administration and Utilization

Industrial Teacher Education Department

Richard Gebhart, Developer
Jack Sampson, Developer

University of Wisconsin-Stout
Menomonie, Wisconsin 54751

INTRODUCTION

Once the standardized tests are available, the teacher must be familiar with the administration of the particular test being given. The teacher should be able to indicate to the students why the test is being used and how the results will be handled. Setting up the test atmosphere and relating all necessary directions are relevant considerations at the time of administration.

When the test results are available, the teacher has to be familiar with the particulars of the test and be able to help the students understand what the test results mean to them individually.

ABOUT THIS MODULE

Competency to be Gained:

Administer and utilize commercial standardized evaluation instruments.

Objectives:

After completing this module, you will be able to:

1. Select appropriate test(s) to measure what you wish to measure.
2. Administer the instrument according to the rules, regulations, and procedures called for on the test booklets.
3. Interpret the results of the instrument against the test booklets standards and norms.
4. Communicate to the students their results and interpret the results for them.

If you feel you possess this competency, proceed to the module Performance Assessment Test.

If you feel the need for additional experience, proceed to the Learning Experience activities.

Learning Experience I

Required: Order a test to use with your class.

Optional: Repeat required activity.

Learning Experience II

Required: Administer a commercial test to your class.

Optional: Repeat required activity.

Learning Experience III

Required: List all pertinent material for a presentation.

Optional: Repeat required activity.

Learning Experience IV

Required: Communicate results to a class, group or student.

Optional: Repeat required activity.

LEARNING EXPERIENCE I

Objective:

After the completion of this activity, you will be able to list the commercial standardized test(s) you wish to use and order them if necessary.

Note: Tests may be available through the Counseling Center. If not, you will have to order them.

Pre-requisite:

You must complete Module GS-VII-1 before attempting this activity.

Activity:

Complete an order for a test you wish to administer through the Counseling Center or directly from the test service that has them available.

Optional Activity:

Repeat required activity for a different test.

Assessment:

Your competency on this activity will be evaluated on the module Performance Assessment Test.

LEARNING EXPERIENCE II

Objective:

After completing this activity, you will be able to administer a commercial standardized test.

Activity:

Following all the directions in the test procedure booklet for the test you selected and ordered, administer the test to your students. If

the test can be hand scored, do so. If the test must be returned to the test service for processing, do that.

Optional Activity:

Repeat required activity on a second test.

Assessment:

Your competence on this activity will be evaluated on the module Performance Assessment Test.

LEARNING EXPERIENCE III

Objective:

After completing this activity, you will be able to interpret the results of the test.

Activity:

Using the test service booklet and the results of the test you administered (either hand-scored or computer processed), list all the information necessary to present to the students when bringing the results to them.

Optional Activity:

Repeat for a second test.

Assessment:

Your comptence on this activity will be evaluated on the module Performance Assessment Test.

LEARNING EXPERIENCE IV

Objective:

After completing this activity, you will be able to communicate commercial standardized test results to students, individually or in groups.

Activity:

With the list generated for Learning Experience III, present the test results to a class, a group of students or an individual student. Explain in terms of the test service booklet the meaning of the student's results on the test.

Optional Activity:

Repeat for a second test.

Assessment:

Your competence on this activity will be evaluated on the module Performance Assessment Test.

MODULE PERFORMANCE ASSESSMENT TEST

Directions: Indicate the level of accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable or impossible to execute, place an X in the N/A box.

		LEVEL OF PERFORMANCE					
	List Commercial Test	N/A	None	Poor	Fair	Good	Excellent
1.	Originate an order for test.	0	0	0	0	0	0
2.	Repeat an order (opt.).	0	0	0	0	0	0
	Give the Test						
3.	Administer ordered test.	0	0	0	0	0	0
4.	Repeat administration (opt.).	0	0	0	0	0	0
	Interpret Test						
5.	List information to present.	0	0	0	0	0	0
6.	Repeat for second test (opt.).	0	0	0	0	0	0
	Communicate Results						
7.	Present to class, group or individual students.	0	0	0	0	0	0
8.	Repeat for second test.	0	0	0	0	0	0